

Rejection Under 35 U.S.C. §112

Claims 11-16 stand rejected under 35 U.S.C. §112, in that the rejected claims refer to “the material of claim 10,” but claim 10 is drawn to a process rather than a material. The reference in claims 11-16 was in error, for which Applicant apologizes. By amendment herein, the reference in each of claims 11-16 has been changed from a material to a process. This rejection should, therefore, be withdrawn.

Prior Art Rejections

All pending claims 1-16 stand rejected under 35 U.S.C. §102(b) over Howard (U.S. Patent No. 4,961,991) in view of Atkinson *et al.* (U.S. Patent No. 4,591,166) and “Typical Grafoil® sheet properties.”

As a first matter, it must respectfully be pointed out that for anticipation under 35 U.S.C. §102(b) to be present, all of the elements of the rejected claims must be found in a single prior art reference. Accordingly, rejecting claims 1-16 over Howard in view of additional references is not proper under Section 102. Moreover, since additional references needed to be cited, Howard by definition cannot anticipate the subject matter of the rejected claims.

In addition, although the Official Action refers to specific portions of the cited references in making the rejection, it is not clear how the different elements are even arguably found at the cited portions.

Notwithstanding the foregoing, the cited references do not anticipate or even remotely suggest the subject matter of claims 1-16. More specifically, Howard discloses a polymer impregnated cloth sandwiched between layers of flexible graphite. This laminated structure is pressed under load and heat to form a leak-free gasket product. Atkinson *et al.* discuss taking flexible graphite and coating the material with a polymer (silicone) to improve release after product use. Embossments and rolling the material with a cloth or metal mesh are also discussed to provide “the desired relief pattern.”

The invention of the above-captioned application is quite different. The claimed invention relates to a material and process specially design/prepared so that the internal structure can be manipulated to provide different end-use morphologies/properties. This morphological control is different from that obtained through calendering or gasket embossing of flexible graphite for relief patterns. In the cited references, final morphologies are obtained as a result of trying to reach a final void-free condition, not as a result of formal control and manipulation of the internal void amount and structure. These references mention starting with a lower void content "perform," which does not appear to be to control morphology but, rather, to prevent blistering in any final rolling/pressing processes.

In the above-captioned application, the claims relate to manipulating the internal void content of flexible graphite and flexible graphite with a homogeneous distribution of resin, in order to change the internal morphology from the usual transversely orthotropic structure to something that may be more desirable under certain conditions. By this manipulation, the degree of local anisotropy after embossing can be controlled and therefore unique properties achieved.

With respect to claims 5-9 and 14-16 in the above-captioned applications, they involve graphite sheet impregnated with resin, much different from anything outlined in the cited art. Howard introduces a resin impregnated cloth into a laminate while Atkinson *et al.* coat an already embossed graphite sheet with a polymer. Starting with a homogeneously impregnated graphite sheet before embossing as claimed is very different. Graphite with a homogeneous distribution of resin behaves in a much different manner when subjected to forming, rolling, embossing, *etc.* The resin adds viscoelastic properties to the entire structure, not just an intermediate layer as describe in the Howard patent. The behavior encountered with this impregnated material is not predictable from unimpregnated flexible graphite, flexible graphite with an interlayer of polymer-rich material, or polymer coated flexible graphite.

Finally, claim 9 describes a starting material which is thinner than the final embossed structure, something that is only realistic with homogeneously impregnated flexible graphite. This ability to "flow uphill" illustrates the extreme differences between materials mentioned in

the subject application and those discussed in open literature. This unique ability coupled with void manipulation allows a wide variety of morphologies to be realized when utilizing the claimed process and material.

Claims 1-3 and 10-12 stand rejected under 35 U.S.C. §102(b) or, in the alternative, 35 U.S.C. §103(a) over Mercuri (U.S. Patent No. 6,017,633) in view of Atkinson *et al.*

Again, to the extent that two references need to be combined to make the instant rejection, anticipation cannot be found and the Section 102 rejection is improper.

More to the point, Mercuri discusses a heterogeneous flexible graphite sheet prepared with expanded flakes and unexpanded intercalated flakes. The patent discusses material with “no acceptable voids or fissures” to help prevent permeation of fluids. However, the information provided by Mercuri and Atkinson *et al.* cannot lead one of ordinary skill in the art to the materials/process that are claimed. The information provided in these patents suggests that void free products are beneficial in sealing applications. However, this void-free condition is mutually exclusive from the internal morphology and manipulation to get this morphology. It is certainly possible to achieve many different void-free situations but with vastly different internal structures, resulting in a wide range of performance characteristics. Conversely, it may be possible to achieve a desirable morphology only by retaining a finite amount of void space in the final part. Control and manipulation of the void content with flexible graphite and impregnated flexible graphite to give desired qualities is different from material discussed in the cited patents, which do not anticipate or render obvious the rejected claims.

Accordingly, the rejections under Sections 102 and 103 have been shown to be improper and should be withdrawn.

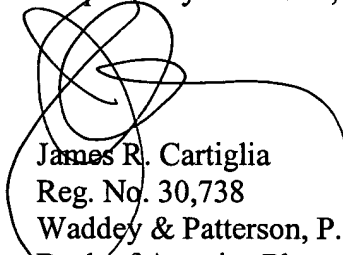
Conclusion

Based on the foregoing amendments and remarks it is believed that all pending claims 1-16 are in condition for allowance. Such action is earnestly sought. If there remains any matter

which prevents the allowance of any of these claims, the Examiner is requested to call the undersigned "collect" at 615.242.2400 to arrange for an interview that may expedite prosecution.

Pursuant to 37 C.F.R. §1.136(a), Applicant petitions the Commissioner to extend the time for responding to the July 17, 2002, Office Action for 1 month from October 17, 2002, to November 17, 2002. The Commissioner is authorized to charge any deficiency or credit any overpayment associated with the filing of this Response to Deposit Account 50-1202

Respectfully submitted,



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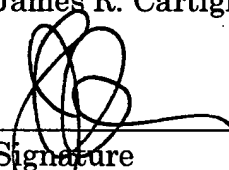
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I hereby certify that this Response and Amendment, Request for One Month Extension, Certificate of First Class Mailing, and self addressed return post card are being deposited with the United States Postal Service as first class mail in an envelope addressed to:

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on November 18, 2002.

James R. Cartiglia



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